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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/741,045	12/21/2000	Sung-Kon Kim	3430-0154P	5517
2292	7590	11/27/2006	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			DUONG, THOI V	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 11/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/741,045

Applicant(s)

KIM, SUNG-KON

Examiner

Thoi V. Duong

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 ~~is/are~~ are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 ~~is/are~~ are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/23/06</u> . | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. This office action is in response to the Amendment filed September 15, 2006.

Accordingly, new claim 21 was added. Claims 1-21 are currently pending in this application.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1-5, 7, 9, 10 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagakubo et al. (Nagakubo, USPN 6,219,117 B1) in view of Matsumoto (USPN 5,649,754).**

Re claim 1, as shown in Figs. 1 and 3, Nagakubo discloses a back light device for use in a liquid crystal display device 1, comprising:

- at least one lamp 8;
- a light guide plate 5 (light transmission member) for guiding light emitting from the lamp;
- a diffusing sheet 4 for diffusing light emitting from the light guide plate;
- at least one prism sheet 3 located on the diffusing sheet, concentrating light (col. 6, lines 30-34);
- a protecting sheet 2 located on the prism sheet;

a reflector 6 located under the light guide plate, reflecting light directing downward the light guide plate,

wherein an edge portion of the diffusing sheet 4 adjacent to the lamp 8 includes a printing portion 4a made of ink having white material containing a light scattering agent since the printing portion 4a is a part of the diffusing sheet 4 (col. 7, lines 22-47).

Re claim 3, as shown in Fig. 1, although Nagakubo discloses a liquid crystal panel including two substrates and a back light device described above, Nagakubo does not disclose a liquid crystal layer interposed between the two substrates. However, it is obvious that the liquid crystal display device will not work without a liquid crystal layer.

Re claim 21, as shown in Figs. 1 and 3 of Nagakubo, it is obvious that the printing portion 4a printed on the diffusing sheet 4 also have a convex and concave surface topology for diffusing light.

Nagakubo discloses a back light device for use in a liquid crystal display device that is basically the same as that recited in claims 1, 3 and 21 except for the ink being colorless instead of white.

As shown in Fig. 3(B), Matsumoto discloses a back light device for use in a liquid crystal device comprising a diffusing plate 8 having a printing portion 10 made of transparent ink (or colorless ink) to reduce irregular reflection, wherein the quantity of irregular reflection is adjustable by varying the degree of roughness of the transparent ink surfaces or by mixing an irregularly reflecting additive (or light scattering agent) into the transparent ink (col. 6, lines 29-65).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the diffusing sheet of the back light device of Nagakubo with the teaching of Matsumoto by using colorless ink containing a light scattering agent for the printing portion in order to cause irregular reflection in an appropriate degree, and hence provide a substantially uniform intensity of illumination (col. 6, line 45 through col. 7, line 8).

Re claims 2 and 4, Nagakubo discloses that the back light device has two lamps (col. 14, lines 9-15).

Re claims 5 and 7, Nagakubo discloses that the light guide plate 5 has a plurality of patterns 5b for reflecting the light upward (col. 6, lines 42-44).

Re claims 9 and 10, as shown in Figs. 1 and 2, Nagakubo discloses that light reflected from a bottom surface (as the first light beam) of the device causes constructive interference with light emitting from the lamp (as the second light beam A), whereby a bright line (emission line) is prevented (col. 7, line 43 through col. 8, line 30 and col. 14, lines 15-28).

**4. Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagakubo et al. (Nagakubo, USPN 6,219,117 B1) in view of Matsumoto (USPN 5,649,754) as applied to claims 1-5, 7, 9, 10 and 21 above and further in view of Mashino et al. (Mashino, USPN 5,886,759).**

Nagakubo in view of Matsumoto discloses a liquid crystal display device that is basically the same as that recited in claims 6 and 8 except for the light guide plate having a plurality of dot patterns.

Art Unit: 2871

As shown in Fig. 1A, Mashino et al. discloses a back light device comprising a light guide plate 37 having a pattern of a plurality of light diffusion dots 67 on the underside of the light guide plate for transmitting light introduced into the light guide plate and subjected to total reflection (col. 4, lines 34-38).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the liquid crystal display of Nagakubo with the teaching of Mashino by forming a light guide plate having a plurality of dot patterns for effectively transmitting light introduced into the light guide (col. 4, lines 34-38).

**5. Claims 11-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suga et al. (Suga, USPN 6,425,673 B1) in view of Matsumoto (USPN 5,649,754) and Nagakubo et al. (Nagakubo, USPN 6,219,117 B1).**

Re claim 11, as shown in Fig. 2, Suga discloses a back light device for use in a liquid crystal display device, comprising;

at least one lamp 8;

a light guide plate 2 for guiding light emitting from the lamp;

a diffusing sheet 13 for diffusing light emitting from the light guide plate 2;

at least one prism sheet 12 located on the diffusing sheet, concentrating light;

and

a reflector 14 located under the light guide plate, reflecting light directing downward the light guide plate,

wherein, as shown in Fig. 6B, at least one of an edge portion of the reflector 14 includes a diffusion-reflective pattern 26 (Applicant's printing portion) made of white ink or the like containing a light scattering agent (col. 13, lines 19-31).

Re claim 21, in addition, as shown in Fig. 6B, Suga also discloses that the diffusion-reflective pattern 26 has a convex and concave surface topology.

Re claim 12, although Suga discloses a liquid crystal display device using the back light device as described above (col. 3, lines 52-55), Suga does not disclose the liquid crystal display device comprising two substrates with a liquid crystal layer interposed therebetween. However, it is obvious that the liquid crystal display device comprises two substrates with a liquid crystal layer interposed therebetween as well known in the art.

Suga discloses a back light device for use in a liquid crystal display device that is basically the same as that recited in claims 11, 12 and 21 except for the ink of the printing portion being colorless instead of white and a protecting sheet located on the prism sheet.

At first, as shown in Fig. 3(B), Matsumoto discloses a back light device for use in a liquid crystal device comprising a diffusing plate 8 having a printing portion 10 made of transparent ink (or colorless ink) to reduce irregular reflection, wherein the quantity of irregular reflection is adjustable by varying the degree of roughness of the transparent ink surfaces or by mixing an irregularly reflecting additive (or light scattering agent) into the transparent ink (col. 6, lines 29-65).

Art Unit: 2871

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the reflector of the back light device of Suga with the teaching of Matsumoto by using colorless ink containing a light scattering agent for the printing portion in order to cause irregular reflection in an appropriate degree, and hence provide a substantially uniform intensity of illumination ((col. 6, line 45 through col. 7, line 8).

Further, as shown in Fig. 1, Nagakubo discloses a liquid crystal display device comprising a back light device and a protecting sheet 2 located on a prism sheet 3 to diffuse light and protect the surface of the prism sheet 3 (col. 6, lines 25-57).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the back light device of Suga with the teaching of Nagakubo by forming a protecting sheet on the prism sheet in order to protect the surface of the prism sheet (col. 6, lines 25-30).

Re claims 13 and 14, the back light device of Suga has two lamps 8 as shown in Fig. 1.

Re claims 15-18, the light guide plate 2 of Suga has a plurality of patterns 6, wherein the patterns are dots (col. 6, lines 60-67).

Finally, re claims 19 and 20, Suga discloses that light reflected from a bottom surface of the device causes constructive interference with light emitting from the lamp, whereby a bright line is prevented (col. 13, lines 19-28).



***Response to Arguments***

6. Applicant's arguments filed September 15, 2006 have been fully considered but they are not persuasive.

Applicant argued that Matsumoto teaches away from the present invention since Matsumoto uses transparent ink to reduce light scattering and Matsumoto also fails to disclose a light scattering agent.

The Examiner disagrees with Applicant's remarks since the transparent ink of Matsumoto is used to reduce irregular reflection in order to cause irregular reflection in an appropriate degree and hence, to provide a substantially uniform intensity of illumination (col. 6, line 45 through col. 7, line 8). Accordingly, the irregular reflection is regulated to provide a substantially uniform intensity of illumination. Matsumoto also discloses that the quantity of irregular reflection (or light scattering) can be adjustable by mixing an irregularly reflecting additive into the transparent ink (col. 6, lines 61-65). Accordingly, it is clear by definition that the irregularly reflecting additive is a light scattering agent.

Since the claimed and prior art products are identical (transparent ink or colorless ink with light scattering agent), claimed properties or functions are presumed to be inherent (MPEP 2112.01). However, while features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function (MPEP 2114).

Thus, Matsumoto does not teach away from the present invention and a prima-facie of obviousness has been established.

Art Unit: 2871

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Nagakubo discloses an edge portion of the diffusing sheet adjacent to the lamp including a printing portion 4a made of ink having white material containing a light scattering agent; Suga also discloses an edge portion of the reflector including a printing portion made of ink having white material containing a light scattering agent. However, Matsumoto is employed for teaching a transparent material as a colorless material for reducing irregular reflection in order to cause irregular reflection in an appropriate degree and hence, to provide a substantially uniform intensity of illumination.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the printing portion of Nagakubo with the teaching of Matsumoto by using colorless ink containing a light scattering agent for the printing portion in order to cause irregular reflection in an appropriate degree, and hence provide a substantially uniform intensity of illumination (col. 6, line 45 through col. 7, line 8).

Art Unit: 2871

As a result, the combination of the cited art references would motivate one having skill in the art to produce the claimed invention; therefore, a prima facie of obviousness has been made.

***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

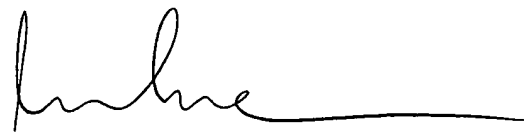
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (571) 272-2292. The examiner can normally be reached on Monday-Friday from 8:30 am to 4:30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms, can be reached at (571) 272-1787.

Thoi Duong



11/16/2006



DUNG T. NGUYEN  
PRIMARY EXAMINER